September 18, 2001

Thomas C. Willeford
Aluminum Company of America - Lafayette Indiana Operations
P.O. Box 7500
Lafayette, IN 47903-7500

Re: 157-14486-00001
Significant Source Modification to:
Part 70 permit No.: T157-7101-00001

Dear Mr. Willeford:

Aluminum Company of America - Lafayette Indiana Operations was issued Part 70 operating permit T157-7101-00001 on March 18, 1999 for operation of a secondary aluminum production facility. An application to modify the source was received on June 4, 2001. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

Fifty (50) natural gas fired units, with a total maximum design capacity of 134.4 million (MM) British thermal units per hour (Btu/hr). Each individual heating unit will have a heat input rate in the range of 0.05 MMBtu/hr up to a maximum of 6.6 MMBtu/hr.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

This significant source modification authorizes construction of the new emission units. Operating conditions shall be incorporated into the Part 70 operating permit as a significant permit modification in accordance with 326 IAC 2-7-10.5(l)(2) and 326 IAC 2-7-12. Operation is not approved until the significant permit modification has been issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call Nishat Hydari at (973) 575-2555, ext. 3216, or call (800) 451-6027, press 0 and ask for extension 3-6878.

Sincerely,

Original Signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
NH/EVP
cc: File - Tippecanoe County
Tippecanoe County Health Department
Air Compliance Section Inspector - Jim Thorpe
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

PART 70 OPERATING PERMIT
and ENHANCED NEW SOURCE REVIEW
OFFICE OF AIR QUALITY

Aluminum Company of America - Lafayette Operation
3131 Main Street
Lafayette, Indiana 47905

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 and 326 IAC 2-1-3.2 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T157-7101-00001	
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Management	Issuance Date: March 18, 1999

Exemption 157-10999-00001, issued on August 10, 1999
Minor Permit Modification No.: 157-11505-00001, issued on November 12, 1999
Exemption 157-11481-00001, issued on November 16, 1999

Significant Source Modification No.: 157-14486-00001	Pages Affected: 9, 11, 42, 43, 44
Issued by: Original Signed by Paul Dubenetzky Paul Dubenetzky, Permits Branch Chief Office of Air Quality	Issuance Date: September 18,2 001

(18) the #8 natural gas-fired press reheat granco furnace, referred to as emission unit 40, constructed in 1992, with a maximum heat input capacity of 16.0 million Btu per hour, with emissions uncontrolled;

(19) the #6 natural gas-fired age oven, referred to as emission unit 50, constructed in 1996, with a maximum heat input capacity of 14.0 million Btu per hour, with emissions uncontrolled;

Extrusion - 2

(20) the #1 natural gas-fired horizontal heat treat furnace, referred to as emission unit 70, constructed in 1957, with a maximum heat input capacity of 13.2 million Btu per hour, with emissions uncontrolled and exhausting to stack 68-112;

Tube Mill

(21) the tube mill solvent dip tank system, referred to as emission units 94, 95, and 96, consisting of a 5000 gallon capacity 35 ft dip tank, a 10,000 gallon capacity 50 ft dip tank, a tank farm, and several parts washers, constructed in 1942, with emission uncontrolled;

Plant Miscellaneous

(22) sand blasting operations, referred to as emission unit 108, constructed in 1960, with emissions uncontrolled and exhausting to stack 75-58;

(23) sawing activities located in the carpenter shop, referred to as emission unit 102, constructed in 1960, with emissions controlled by a cyclone, referred to as the #2 sawdust collector and exhausting to stack 72-57.

(11) the north skim cooling enclosure, referred to as emission unit 16, with emissions exhausting to stack 3-8F;

(12) the south skim cooling enclosure, referred to as emission unit 17, with emissions exhausting to stack 4-8F;

(13) log sawing and lathe operation, referred to as emission unit 31;

(14) the #41 holding furnace, referred to as emission unit 8, with a maximum capacity of 1.2 tons of aluminum per hour and a maximum heat input capacity of 10.0 million Btu per hour, with emissions exhausting to stack 6-8;

Tube Mill

(15) the Lochnivar boiler, referred to as emission unit 90, constructed in 1995, with a maximum heat input capacity of 0.4 million Btu per hour;

(16) the Cleaver brooks boiler, referred to as emission unit 93, constructed in 1975, with a maximum heat input capacity of 2.6 million Btu per hour;

Plant Miscellaneous

(17) the pacific boiler #1, referred to as emission unit 103, constructed in 1940, with a maximum heat input capacity of 2.6 million Btu per hour;

(18) the pacific boiler #2, referred to as emission unit 104, constructed in 1940, with a maximum heat input capacity of 2.6 million Btu per hour;

(19) the box shop sawdust collector exhaust, referred to as emission unit 92, with emissions exhausting to stack 72-57;

(20) the paint shop exhaust, referred to as emission unit 105, with emissions exhausting to stack 85-57;

(21) the babbit melting furnace, referred to as emission unit 109, with emissions exhausting to stack 81-58; and

(22) Fifty (50) natural gas fired units, with a total maximum design capacity of 134.4 million (MM) British thermal units per hour (Btu/hr). Each individual heating unit will have a heat input rate in the range of 0.05 MMBtu/hr up to a maximum of 6.6 MMBtu/hr.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22); and

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION D.5 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]	**Insignificant Activities**
Fifty (50) natural gas fired units, with a total maximum design capacity of 134.4 million (MM) British thermal units per hour (Btu/hr). Each individual heating unit will have a heat input rate in the range of 0.05 MMBtu/hr up to a maximum of 6.6 MMBtu/hr.	

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 PSD Minor Limit [326 IAC 2-2]

Boiler #3 and Boiler #6 from the boilerhouse must be removed from service before the fifty (50) natural gas fired units are operated. This removal shall result in a net emission reduction of 18.9 tons of NOx per year.

D.5.2 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The NOx emissions from the fifty (50) natural gas fired units shall have the potential to emit less than 58.87 tons per 12 consecutive month period, based on a maximum design capacity of 134.4 MMBtu/hr and an NOx emission factor of 0.98 lb/MMBtu. This limit is required to limit the potential to emit of NOx to less than 40 tons per 12 consecutive month period (after netting). Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.5.3 Maximum heat capacity [326 IAC 2-7-5(15)]

Each individual natural gas fired unit shall not have a maximum heat input rate of greater than 6.6 MMBtu/hr, or else the unit will not be considered insignificant.

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Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Significant Source Modification to a Part 70 Operating Permit

Source Background and Description

Source Name:	Aluminum Company of America - Lafayette Indiana Operations
Source Location:	3131 East Main Street, Lafayette, IN 47903
County:	Tippecanoe
SIC Code:	3341, 3354
Operation Permit No.:	T157-7101-00001
Operation Permit Issuance Date:	March 18, 1999
Significant Source Modification No.:	157-14486-00001
Permit Reviewer:	NH/EVP

The Office of Air Quality (OAQ) has reviewed a modification application from Aluminum Company of America - Lafayette Indiana Operations relating to the operation of a secondary aluminum production facility.

History

On June 4, 2001, Aluminum Company of America - Lafayette Indiana Operations submitted an application to the OAQ requesting the installation of fifty (50) natural gas fired units. The units are being installed to reduce the plant steam requirements and to achieve higher energy efficiency. With the installation of the fifty (50) units, the source will be removing boiler #3 and boiler #6 from the boiler house. Aluminum Company of America - Lafayette Indiana Operations was issued a Part 70 permit on March 18, 1999.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

New Emission Units and Pollution Control Equipment Receiving Prior Approval

The application includes information relating to the prior approval for the construction and operation of the following equipment pursuant to 326 IAC 2-7-5(16):

Fifty (50) natural gas fired units, with a total maximum design capacity of 134.4 million (MM) British thermal units per hour (Btu/hr). Each individual heating unit will have a heat input rate in the range of 0.05 MMBtu/hr up to a maximum of 6.6 MMBtu/hr.

Permitted Emission Units and Pollution Control Equipment Removed from the Source

The following previously permitted emission units and control devices will be removed from service:

Boilerhouse

(a) the #3 natural gas, and distillate oil-fired boiler, referred to as emission units 97 and 98, constructed in 1992 and modified in 1995, with a maximum heat input capacity of 86.0 million Btu per hour, with emissions uncontrolled and exhausting to stack 64-1; and

(b) the #6 natural gas, and distillate oil-fired boiler, referred to as emission units 99 and 100, constructed in 1957 and modified in 1995, with a maximum heat input capacity of 100 million Btu per hour, with emissions uncontrolled and exhausting to stack 64-1.

Existing Approvals

The source was issued a Part 70 Operating Permit T157-7101-00001 on March 18, 1999. The source has since received the following approvals:

(a) Exemption 157-10999-00001, issued on August 10, 1999;

(b) Minor Permit Modification No.: 157-11505-00001, issued on November 12, 1999; and

(c) Exemption 157-11481-00001, issued on November 16, 1999.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on June 4, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, pages 1 through 2).

Potential To Emit Before Controls (Modification)

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

Pollutant	Potential To Emit (tons/year)
PM	1.12
PM-10	4.47
SO_2	0.35
VOC	3.24
CO	49.45
NO_x	58.87

Justification for Modification

The Title V permit is being modified through a Significant Source Modification. This modification is being performed pursuant to 326 IAC IAC 2-7-10.5(f)(4) because the source has the potential to emit CO and NOx greater than 25 tons per year. This modification will give the source approval to construct the new emission units. A Significant Permit Modification (157-14533-00001) will also be drafted and issued and will incorporate the source modification into the Part 70 permit and give the source approval to operate the new emission units.

County Attainment Status

The source is located in Tippecanoe County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and NO_X emissions are considered when evaluating the rule applicability relating to the ozone standards. Tippecanoe County has been designated as attainment or unclassifiable for ozone.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	250.87
PM-10	239.57
SO_2	495.82
VOC	32.77
CO	59.62
NOx	154.46

This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.

These emissions are based upon the Title V (T157-7101-00001) issued to the source on March 18, 1999.

Potential to Emit After Controls for the Modification

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units for the modification.

	Potential to Emit (tons/year)					
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X
Contemporaneous Emissions*	1.12	4.47	0.35	3.24	49.45	58.87
Contemporaneous Decreases**	1.435	1.435	0.15	1.035	15.81	18.9
Net Emissions	-0.315	3.035	0.20	2.205	33.64	39.97
PSD Thresholds	25	15	40	40	100	40

*Emissions are obtained from fifty (50) natural gas fired units with a total maximum heat input rate of 134.4 MMBtu/hr
**Actual data for years 1999 and 2000 was used to determine emissions

Note: The removal of Boiler #3 and Boiler #6 from the boiler house are the only decreases from the past five (5) years.

This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2 and 40 CFR 52.21, the PSD requirements do not apply.

Federal Rule Applicability

(a) The fifty (50) natural gas fired units, are not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Da, Db or Dc), because none of the fifty (50) natural gas fired units are boilers.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Tippecanoe County, which is not one of the listed counties for this rule. Additionally, the modification does not have the potential to emit CO, VOC, NO_x, PM-10, or SO_2 at greater than a 100 ton per year rate. Therefore, 326 IAC 2-6 does not apply to this modification.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 2-2 (Prevention of Significant Deterioration)

This proposed modification is not considered a major modification because it has limited potential to emit less than applicable PSD significant emission levels for any regulated pollutant which makes the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)

This rule does not apply to the fifty (50) natural gas fired units because none of the units are indirect heating units (boilers).

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

There are no compliance monitoring requirements applicable to the fifty (50) natural gas fired units.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Quality (OAQ) Part 70 Application Form GSD-08.

None of the listed air toxics will be emitted from this source.

Changes Proposed

1) Boiler #3 and boiler #6 will be deleted from Section A.2. The rest of Section A.2 will be re-numbered accordingly.

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

~~**Boilerhouse**~~

~~(22) the #3 natural gas, and distillate oil-fired boiler, referred to as emission units 97 and 98, constructed in 1992 and modified in 1995, with a maximum heat input capacity of 86.0 million Btu per hour, with emissions uncontrolled and exhausting to stack 91-1;~~

~~(23) the #6 natural gas, and distillate oil-fired boiler, referred to as emission units 99 and 100, constructed in 1957 and modified in 1992 and in 1995, with a maximum heat input capacity of 100 million Btu per hour, with emissions uncontrolled and exhausting to stack 64-1;~~

2) The fifty (50) natural gas fired units are being added to Section A.3.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

Plant Miscellaneous

(17) the pacific boiler #1, referred to as emission unit 103, constructed in 1940, with a maximum heat input capacity of 2.6 million Btu per hour;

(18) the pacific boiler #2, referred to as emission unit 104, constructed in 1940, with a maximum heat input capacity of 2.6 million Btu per hour;

(19) the box shop sawdust collector exhaust, referred to as emission unit 92, with emissions exhausting to stack 72-57;

(20) the paint shop exhaust, referred to as emission unit 105, with emissions exhausting to stack 85-57; ~~and~~

(21) the babbit melting furnace, referred to as emission unit 109, with emissions exhausting to stack 81-58~~.~~**; and**

(22) Fifty (50) natural gas fired units, with a total maximum design capacity of 134.4 million (MM) British thermal units per hour (Btu/hr). Each individual heating unit will have a heat input rate in the range of 0.05 MMBtu/hr up to a maximum of 6.6 MMBtu/hr.

3) Section D.5 will be deleted in its entirety and a new Section D.5 will be added in its place.

~~**SECTION D.5 FACILITY OPERATION CONDITIONS**~~

~~Facility Description [326 IAC 2-7-5(15)] Insignificant Activities~~ ~~**Boilerhouse**~~ ~~a) the #3 natural gas, and distillate oil-fired boiler, referred to as emission units 97 and 98, constructed in 1992 and modified in 1995, with a maximum heat input capacity of 86.0 million Btu per hour, with emissions uncontrolled and exhausting to stack 91-1; and~~ ~~b) the #6 natural gas, and distillate oil-fired boiler, referred to as emission units 99 and 100, constructed in 1957 and modified in 1992 and 1995, with a maximum heat input capacity of 100 million Btu per hour, with emissions uncontrolled and exhausting to stack 64-1.~~

~~**Emission Limitations and Standards [326 IAC 2-7-5(1)]**~~

~~D.5.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2]~~

~~Pursuant to CP-157-4078, issued February 10, 1995, the following conditions shall apply:~~

~~(a) Boiler #6 shall not be reconverted to coal-fired use.~~

~~(b) The sulfur content of the fuel oil used in boilers #3 and #6 shall not exceed 0.5 weight percent. Compliance with this condition will also satisfy the requirements of 326 IAC 7-1.1 and 326 IAC 12 (40 CFR Parts 60.40c - 60.48c, Subpart Dc).~~

~~Therefore, the requirements of 326 IAC 2-2 (PSD) will not apply.~~

~~D.5.2 Particulate Matter Limitation (PM) [326 IAC 6-2-4]~~

~~Pursuant to 326 IAC 6-2-4 (Particulate emission limitations for sources of indirect heating) and CP157-4078 issued February 10, 1995, the PM emissions from the boilers #3 and #6 shall not exceed 0.28 pound per million Btu of heat input. This limitation is based on the following equation:~~

~~$Pt = 1.09 / (Q^{0.26})$~~

~~Where:~~

~~Pt = pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.~~

~~Q = total source maximum operating capacity rating in million Btu per hour (MMBTU/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's operation permit application, except when some lower capacity is contained in the facility's operation permit, in which case, the capacity specified in the operation permit shall be used.~~

~~D.5.3 Sulfur Dioxide (SO_2) [326 IAC 7-1.1-1] [326 IAC 12-1]~~

~~Pursuant to 326 IAC 7-1.1 (SO_2 Emissions Limitations) and 40 CFR 60, Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units):~~

~~(a) The SO_2 emissions from the boiler #3 and boiler #6 shall not exceed five tenths (0.5) pounds per million Btu heat input; or~~

(b) The sulfur content of the fuel oil shall not exceed five-tenths percent (0.5%) by weight. [40 CFR 60.42c(d)]

Pursuant to 40 CFR 60 Subpart Dc, the fuel oil sulfur content limit applies at all times, including periods of startup, shutdown, and malfunction.

D.5.4 Opacity [326 IAC 12-1]

Pursuant to 40 CFR 60, Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units), the particulate emissions from the boiler #3 and boiler #6 shall not exceed twenty percent (20%) opacity.

D.5.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities.

Compliance Determination Requirements

D.5.6 Testing Requirements [326 IAC 2-7-6(1),(6)]

The Permittee is not required to test these facilities by this permit. However, IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM and SO_2 limits specified in Conditions D.5.1, D.5.2, D.5.3, and D.5.4 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.5.7 Sulfur Dioxide Emissions and Sulfur Content

Pursuant to 40 CFR 60, Subpart Dc, the Permittee shall demonstrate compliance utilizing one of the following options:

(a) Providing vendor analysis of fuel delivered, if accompanied by a certification; or

(b) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(1) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and

(2) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.5.8 Visible Emissions Notations

(a) When combusting fuel oil daily visible emission notations of the boiler #3 and boiler #6 stack exhausts shall be performed during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.5.9 Record Keeping Requirements

(a) To document compliance with Condition D.5.3, the Permittee shall maintain records in accordance with (1) through (6) below. Note that pursuant to 40 CFR 60 Subpart Dc, the fuel oil sulfur limit applies at all times including periods of startup, shutdown, and malfunction.

(1) Calendar dates covered in the compliance determination period;

(2) Actual fuel oil usage since last compliance determination period and equivalent sulfur dioxide emissions;

(3) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and

If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

(4) Fuel supplier certifications;

(5) The name of the fuel supplier; and

(6) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. Support information includes all calibration and maintenance records and copies of all reports required by this permit.

(b) To document compliance with Condition D.5.8, the Permittee shall maintain records of daily visible emission notations of the boiler #3 and boiler #6 stack exhausts.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.5.10 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.5.3 in any compliance period when fuel oil was combusted, and the natural gas fired boiler certification, shall be submitted to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

SECTION D.5 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]	**Insignificant Activities**
Fifty (50) natural gas fired units, with a total maximum design capacity of 134.4 million (MM) British thermal units per hour (Btu/hr). Each individual heating unit will have a heat input rate in the range of 0.05 MMBtu/hr up to a maximum of 6.6 MMBtu/hr.	

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 PSD Minor Limit [326 IAC 2-2]

Boiler #3 and Boiler #6 from the boilerhouse must be removed from service before the fifty (50) natural gas fired units are operated. This removal shall result in a net emission reduction of 18.9 tons of NOx per year.

D.5.2 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The NOx emissions from the fifty (50) natural gas fired units shall have the potential to emit less than 58.87 tons per 12 consecutive month period, based on a maximum design capacity of 134.4 MMBtu/hr and an NOx emission factor of 0.98 lb/MMBtu. This limit is required to limit the potential to emit of NOx to less than 40 tons per 12 consecutive month period (after netting). Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.5.3 Maximum heat capacity [326 IAC 2-7-5(15)]

Each individual natural gas fired unit shall not have a maximum heat input rate of greater than 6.6 MMBtu/hr, or else the unit will not be considered insignificant.

Conclusion

The construction and operation of the fifty (50) natural gas fired units shall be subject to the conditions of the attached proposed **Significant Source Modification No. 157-14486-00001**.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: Alumninum Company of America - Lafayette Indiana Operations
Address City IN Zip: 3131 East Main Street, Lafayette, IN 47903-7500
Title V Significant Source Modification: 157-14486
PIt ID: 157-00001
Reviewer: NH/EVP

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
134.4	1177.3

Note: The fifty (50) natural gas fired units will have a total design capacity of 134.4 MMBtu/hr
Each individual heating unit will have a heat input rate in the range of 0.5 MMBtu/hr up to a maximum of 6.6 MMBtu/hr

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	1.12	4.47	0.35	58.87	3.24	49.45

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emission Calculations

Company Name: Alumninum Company of America - Lafayette Indiana Operations
Address City IN Zip: 3131 East Main Street, Lafayette, IN 47903-7500
Title V Significant Source Modification: 157-14486
Plt ID: 157-00001
Reviewer: NH/EVP

Emissions Netting Analysis	Tons/yr					
Pollutant	**PM**	**PM10**	**SO2**	**NOx**	**VOC**	**CO**
Contemporaneous Increases	1.12	4.47	0.35	58.87	3.24	49.45
Contemporaneous Decreases	1.44	1.44	0.15	18.90	1.04	15.82
Net Emissions	-0.32	3.03	0.20	39.97	2.20	33.63
PSD or Offset Significant Level	25	15	40.0	40.0	40.0	100.0

Notes
Contemporaneous Increases are from the installation of fifty (50) small natural gas fired units
Contemporaneous Decreases are from elimination of boiler house boilers #3 and #6 (data is from years 1999 and 2000)

Calculations for Contemporaneous Decreases

	PM	**PM10**	**SOx**	**NOx**	**VOC**	**CO**
Natural Gas Emissions (tons/yr) (1999)	1.54	1.54	0.12	20.2	1.11	16.97
Natural Gas Emissions (tons/yr) (2000)	1.32	1.32	0.1	17.39	0.96	14.61
Fuel Oil Emissions (tons/yr) (1999)	0.0196	0.0196	0.0695	0.1958	0.0033	0.049
Fuel Oil Emissions (tons/yr) (2000)	0.0014	0.0014	0.0049	0.0138	0.0002	0.0035

Total Emissions (tons/yr) (1999)	1.56	1.56	0.19	20.40	1.11	17.02
Total Emissions (tons/yr) (2000)	1.32	1.32	0.10	17.40	0.96	14.61
Contemporaneous Decreases	1.44	1.44	0.15	18.90	1.04	15.82

Notes
Natural gas emissions and fuel oil emissions for 1999 and 2000 were provided by the source
Total Emissions = Natural Gas Emissions (year) + Fuel Oil Emissions (year)
Contemporaneous Decreases = (Total Emissions (1999) + Total Emissions (2000)) /2